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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,195	04/25/2007	Marcus Vetter	08449-0203	6937

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EXAMINER	
ROY, BAISAKHI	

ART UNIT	PAPER NUMBER
3777	

MAIL DATE	DELIVERY MODE
06/14/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,195	VETTER ET AL.	
	Examiner	Art Unit	
	BAISAKHI ROY	3777	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *17-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 23-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/8/11 have been fully considered but they are not persuasive. With respect to applicant's arguments about Shahidi not teach recording and storing static image data, it is not clear to examiner how this is different from previously obtaining image data of the patient's organ before the operation. Shahidi clearly teaches obtaining pre-operative data where the images of the patient have been previously obtained, recorded or loaded, and stored into the computer memory (col. 6 lines 38-51). The reference doesn't just assume that the images have been previously obtained. It explicitly teaches that the image data was "previously obtained". The reference details the process of the "pre-op protocol".

2. With respect to applicant's arguments about Shahidi not teaching "successive correction" of the instrument position in relation to the static image data, Shahidi teaches continually updating the displayed images during the surgical procedure and the resulting displays are constantly refreshed in real-time due to changes in the position and orientation of the surgical instrument (col. 7 lines 29-37). With respect to Shahidi failing to teach extraction of organ structure, Shahidi teaches segmenting or extracting out anatomical features of interest such as bone, brain tissue, vascular and ventricular tubular structures using known segmentation techniques (col. 6 lines 59-66). Therefore, the reference clearly teaches making changes or successive corrections based on changes of the instrument position and extracting features of interest from the static previously obtained image data.

3. Applicant's arguments with respect to Shahidi not teaching a optimization method taking into account information on the previous distance covered by the instrument, Shahidi teaches tracking or monitoring or taking into account information on the previous distance covered by the incision device through tissue by displaying the data set where the surgeon can monitor every step of the incision as he or she moves through the tissue (col. 13 lines 50-59). Shahidi teaches the use of geometric transformation and perspective-view characterizations to provide the realistic simulation of the camera's field of view providing information and description on the distance covered by the surgical instrument (col. 14 lines 27-67). Therefore, Shahidi details the procedure involving obtaining and storing image data before the intervention, extraction of organ structures of interest from the static image data, converting the course of the organ structures into geometric description and localizing the instrument by tracking it and correcting position of the instrument based on distance covered by the instrument and making corrections in relation to the instrument data (fig. 16, col. 13 lines 60-col. 14).

4. Applicant's arguments regarding Shahidi requiring an intra-operative imaging technique, Shahidi does teach obtaining intra-operative images. However, Shahidi teaches running the pre-op program in parallel with the intra-op program and therefore the pre-op program is not dependent on the intra-op program (col. 9 lines 52-57). The pre-op program and the intra-op program are configured to run independently since they are designed independently. While the claimed invention does not require intra-operative imaging, the fact that Shahidi includes this program in addition to but

independent of the pre-op program is not an issue since Shahidi does not require the pre-op to be dependent on the intra-op program.

5. Applicant's arguments regarding the additional differences between Shahidi and the claimed invention, applicant lists the features that are found in Shahidi but does not provide adequate explanation as to how these features are explicitly different from features of the claimed invention.

6. Therefore the previous rejection is maintained and repeated below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-15 and 23-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Shahidi (7844320). Shahidi discloses a method for navigation during medical interventions on tubular organ structures 112, 117 by recording and storing static image data of the organ structure before the intervention (col. 6 lines 42-51), extracting the organ structures (col. 13 lines 65-col. 14 line 5), converting into geometric description used during the medical intervention for instrument/organ recording 109 (col. 6 lines 52-col. 7 line 38). The instrument 109 is spatially localized by a tracking system or optical tracking system having a sensing unit 105 and is successively corrected in relation to

the static data by a transformation that is preferably defined by an optimization method, taking into account the geometric description and information on the previous distance covered by the instrument or the static data are successively corrected in relation to the instrument position and the position of the instrument is associated with the anatomical structures in the static image data (col. 13 lines 60-col. 14 lines 67). The information on the distance covered represents the continuously recorded or constantly refreshed spatial position of the instrument and the instrument tip 115 and several positions along the instrument are recorded as the spatial position of the instrument (col. 7 lines 53-col. 8 line 16). The information on the distance covered contains further features which can in particular represent ramifications of the tubular organ structures during advancement of the instrument (col. 8 lines 31-52). The method also involves applying external or internal markers 113, 114 and the movement of the tubular organ structure is recorded and included in the calculation of the transformation (col. 5 lines 38-42, col. 12 lines 28-38, col. 18 lines 43-56). The movement of the patient or patient-specific movement is taken into account when calculating the position (col. 13 lines 21-24). Therefore the images are recorded by registering the instrument position and taking into account the calculated cyclical movements and obtained in real time resulting in continually updating the images during the procedure (col. 7 lines 29-37).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shahidi in view of Green (5928137). Shahidi teaches a neurological surgical procedure. In the same field of endeavor Green teaches a system and method for endoscopic imaging and surgery including bronchoscopy interventions to track a tubular organ structure (col. 3 lines 40-col. 4 line 5). It would have therefore been obvious to one of ordinary skill in the art to use the teaching by Green to modify Shahidi such that bronchoscopy procedures can be effectively monitored and treated.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAISAKHI ROY whose telephone number is (571)272-7139. The examiner can normally be reached on M-F (9:00 a.m. - 5:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Chen can be reached on 571-272-3672. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BR
/B. R./
Examiner, Art Unit 3777

/Tse Chen/
Supervisory Patent Examiner, Art Unit 3777